

ATMOSPHERIC ENVIRONMENT

Volume 28
1994

Volume Contents, Author Index and Subject Index



PERGAMON

ATMOSPHERIC ENVIRONMENT

EXECUTIVE EDITORS

Dr P. Brimblecombe, *Norwich, U.K.*

Prof. R. D. Bornstein, *San Jose, CA* (with special responsibility for *Urban Atmosphere*)

Dr A. S. Lefohn, *Helena, MT*

Dr H. B. Singh, *Moffett Field, CA*

ASSOCIATE EDITORS

Dr H. M. ApSimon, *London, U.K.*

Prof. D. Azimi-Garakani, *Tehran, Iran*

Prof. Dr P. J. H. Builtjes, *Delft, The Netherlands*

Prof. P. K. Dasgupta, *Lubbock, TX*

Dr D. G. Fox, *Fort Collins, CO*

Dr J. A. Garland, *Harwell, U.K.*

Dr D. F. Gatz, *Champaign, IL*

Dr R. M. Harrison, *Birmingham, U.K.*

Dr C. S. Hirtzel, *Syracuse, NY*

Prof. Dr H. Horvath, *Wien, Austria*

Dr J. C. R. Hunt, *Cambridge, U.K.*

Prof. O. Hutzinger, *Bayreuth, Germany*

Dr D. J. Jacob, *Cambridge, MA*

Dr W. Jaeschke, *Frankfurt, Germany*

Dr Y. Y. Jiang, *Shanghai, China*

Prof. W. Klug, *Darmstadt, Germany*

Dr O. Lindqvist, *Göteborg, Sweden*

Dr A. Longhetto, *Turin, Italy*

Prof. J. E. Lovelock, *Reading, U.K.*

Dr E. Mészáros, *Veszprem, Hungary*

Prof. Dr Ir. F. T. M. Nieuwstadt, *Delft, The Netherlands*

Dr T. Okita, *Ibaraki, Japan*

Dr L. P. Prahm, *Roskilde, Denmark*

Dr A. G. Robins, *Guildford, U.K.*

Prof. V. C. Runeckles, *Vancouver, Canada*

Dr S. E. Schwartz, *Upton, NY*

Prof. R. S. Scorer, *London, U.K.*

Prof. J. H. Seinfeld, *Pasadena, CA*

Prof. M. P. Singh, *New Delhi, India*

Dr W. G. N. Slinn, *Richland, WA*

Dr F. B. Smith, *Bracknell, U.K.*

Dr K. Spurný, *Grafschaft, Germany*

Dr K. Takeuchi, *Tokyo, Japan*

Dr D. T. Tingey, *Corvallis, OR*

Prof. M. H. Unsworth, *Corvallis, OR*

Dr H. van Dop, *Utrecht, The Netherlands*

Dr P. Warneck, *Mainz, Germany*

Dr D. M. Whelpdale, *Ontario, Canada*

Dr D. J. Williams, *North Ryde, Australia*

Dr W. E. Wilson, *Research Triangle Park, NC*

Dr P. Zannetti, *Menlo Park, CA*

ASSISTANT EDITOR

Dr J. F. Austin, *Norwich, U.K.*

EDITOR EMERITUS

Dr J. P. Lodge Jr, *Boulder, CO*

Dr M. Benarie, *Grenoble, France*

Dr P. J. Lioy, *Piscataway, NJ*

FORMER EXECUTIVE EDITOR

Dr D. J. Moore (1967–1989)

Production Editor (Elsevier Science Ltd): Alison Selby-Lowndes

Publishing and Advertising Offices

Elsevier Science Ltd, The Boulevard, Langford Lane, Kidlington, Oxford OX5 1GB, U.K.
Tel: (01865) 843000, Fax: (01865) 843010.

Microform Subscriptions and Back Issues

Back issues of all previously published volumes, in both hard copy and on microform, are available direct from Elsevier Science offices (Oxford and New York).

Subscription rates

Annual Institutional Subscription Rates 1995: North, Central and South America, U.S.\$2094.00, Rest of World, £1405.00. Associated Personal Subscription Rates are available on request for those whose institutions are library subscribers. Sterling prices exclude VAT. Non-VAT registered customers in the European Community will be charged the appropriate VAT in addition to the price listed. Prices include postage and insurance and are subject to change without notice. Subscription enquiries from customers in North America should be sent to: Elsevier Science Inc., 660 White Plains Road, Tarrytown, NY 10591-5153, U.S.A. and from the Rest of the World to: Elsevier Science Ltd, The Boulevard, Langford Lane, Kidlington, Oxford OX5 1GB, U.K. Subscription rates for Japan are available on request.

Published semi-monthly.

Disclaimer

Whilst every effort is made by the Publishers and Editorial Board to see that no inaccurate or misleading data, opinion or statement appear in this Journal, they wish to make it clear that the data and opinions appearing in the articles and advertisements herein are the sole responsibility of the contributor or advertiser concerned. Accordingly, the Publishers, the Editorial Board and Editors and their respective employees, officers and agents accept no responsibility or liability whatsoever for the consequences of any such inaccurate or misleading data, opinion or statement.

Second class postage paid at Newark, NJ, and additional mailing offices. Postmaster send address corrections to Elsevier Science Inc., 660 White Plains Road, Tarrytown, NY 10591-5153, U.S.A.

© 1994 Elsevier Science Ltd

CONTENTS OF VOLUME 28

Number 1

Surface Ozone

A. S. Lefohn	1	Introduction: the special issue of <i>Atmospheric Environment</i> on surface ozone
C. Cartalis and C. Varotsos	3	Surface ozone in Athens, Greece, at the beginning and at the end of the twentieth century
S. J. Oltmans and H. Levy II	9	Surface ozone measurements from a global network
Young Sunwoo, G. R. Carmichael and H. Ueda	25	Characteristics of background surface ozone in Japan
J. F. Austin and R. P. Midgley	39	The climatology of the jet stream and stratospheric intrusions of ozone over Japan
T. D. Davies and E. Schuepbach	53	Episodes of high ozone concentrations at the Earth's surface resulting from transport down from the upper troposphere/lower stratosphere: a review and case studies
V. W. J. H. Kirchhoff and E. V. A. Marinho	69	Layer enhancements of tropospheric ozone in regions of biomass burning
J. Staehelin, J. Thudium, R. Buehler, A. Volz-Thomas and W. Graber	75	Trends in surface ozone concentrations at Arosa (Switzerland)
U. Pedersen and A. S. Lefohn	89	Characterizing surface ozone concentrations in Norway
T. Laurila and H. Lättilä	103	Surface ozone exposures measured in Finland
J. S. Bower, K. J. Stevenson, G. F. J. Broughton, J. E. Lampert, B. P. Sweeney and J. Wilken	115	Assessing recent surface ozone concentrations in the U.K.
J. P. Beck and P. Grennfelt	129	Estimate of ozone production and destruction over northwestern Europe
P. R. Miller, M. de Lourdes de Bauer, A. Q. Nolasco and T. H. Tejeda	141	Comparison of ozone exposure characteristics in forested regions near Mexico City and Los Angeles
D. Kley, H. Geiss and V. A. Mohnen	149	Tropospheric ozone at elevated sites and precursor emissions in the United States and Europe
Chung-Ming Liu, Ching-Ya Huang, Shinn-Liang Shieh and Ching-Chi Wu	159	Important meteorological parameters for ozone episodes experienced in the Taipei Basin
<i>News and Opinions</i>		
Introduction	175	
Calendar	175	
Information for Contributors	I	

Number 2

- | | | |
|--|-----|--|
| N. L. Rose and S. Juggins | 177 | A spatial relationship between carbonaceous particles in lake sediments and sulphur deposition |
| J. F. Pankow | 185 | An absorption model of gas/particle partitioning of organic compounds in the atmosphere |
| J. F. Pankow | 189 | An absorption model of the gas/aerosol partitioning involved in the formation of secondary organic aerosol |
| J. C. Dechaux, V. Zimmermann and V. Nollet | 195 | Sensitivity analysis of the requirements of rate coefficients for the operational models of photochemical oxidants formation in the troposphere |
| H. Akimoto and H. Narita | 213 | Distribution of SO ₂ , NO _x and CO ₂ emissions from fuel combustion and industrial activities in Asia with 1° × 1° resolution |
| J. C. Little, A. T. Hodgson and A. J. Gadgil | 227 | Modeling emissions of volatile organic compounds from new carpets |
| Z. Klimont, M. Amann, J. Cofala, F. Gyárfás, G. Klaassen and W. Schöpp | 235 | An emission inventory for the Central European Initiative 1988 |
| R. M. Harrison and I. M. Msibi | 247 | Validation of techniques for fast response measurement of HNO ₃ and NH ₃ and determination of the [NH ₃] [HNO ₃] concentration product |
| M. J. Post, T. Glaes, J. Matta, D. Sommerville and W. Einfeld | 257 | A lidar technique to quantify surface deposition from atmospheric releases of bulk liquids |
| R. M. Eckman | 265 | Re-examination of empirically derived formulas for horizontal diffusion from surface sources |
| M. Z. Jacobson and R. P. Turco | 273 | SMVGear: a sparse-matrix, vectorized Gear code for atmospheric models |
| J. Brosseau and M. Heitz | 285 | Trace gas compound emissions from municipal landfill sanitary sites |
| V. Verges-Belmin | 295 | Pseudomorphism of gypsum after calcite, a new textural feature accounting for the marble sulphation mechanism |
| L. Poissant and P. Béron | 305 | Parameterized rainwater quality model in urban environment |
| H. Sievering, G. Enders, L. Kins, G. Kramm, K. Ruoss, G. Roider, M. Zelger, L. Anderson and R. Dlugi | 311 | Nitric acid, particulate nitrate and ammonium profiles at the Bayerischer Wald: evidence for large deposition rates of total nitrate |
| C. A. Gordon, R. Herrera and T. C. Hutchinson | 317 | Studies of fog events at two cloud forests near Caracas, Venezuela—I. Frequency and duration of fog |
| C. A. Gordon, R. Herrera and T. C. Hutchinson | 323 | Studies of fog events at two cloud forests near Caracas, Venezuela—II. Chemistry of fog |

L. Poissant, J.-P. Schmit and P. Béron	339	Trace inorganic elements in rainfall in the Montreal Island
W. C. Malm, K. A. Gebhart, J. Molenaar, T. Cahill, R. Eldred and D. Huffman	347	Examining the relationship between atmospheric aerosols and light extinction at Mount Rainier and North Cascades National Parks
<i>Technical Notes</i>		
T. J. Murphy and C. W. Sweet	361	Contamination of Teflon surfaces by PCBs in the atmosphere
P. Masia, V. Di Palo and M. Possanzini	365	Uptake of ammonia by nylon filters in filter pack systems
<i>Short Communications</i>		
H. Sievering, E. Gorman, Y. Kim, T. Ley, W. Seidl and J. Boatman	367	Heterogeneous conversion contribution to the sulfate observed over Lake Michigan
S. Straja	371	The importance of the pollutant dispersion along the nominal wind direction
Corrigendum	375	
<i>News and Opinions</i>		
Introduction	377	
Calendar	377	

Number 3

A. J. Policastro, W. E. Dunn and R. A. Carhart	379	A model for seasonal and annual cooling tower impacts
R. N. Colville, T. W. Choularton, M. W. Gallagher, A. J. Wicks, R. M. Downer, B. J. Tyler, K. J. Storeton-West, D. Fowler, J. N. Cape, G. J. Dollard, T. J. Davies, B. M. R. Jones, S. A. Penkett, B. J. Bandy and R. A. Burgess	397	Observation on Great Dun Fell of the pathways by which oxides of nitrogen are converted to nitrate
R. L. Bennett, L. Stockburger and H. M. Barnes	409	Comparison of sulfur measurements from a regional Fine Particle Network with concurrent Acid MODES network results
G. D. Hayman, M. E. Jenkin, T. P. Murrells and C. E. Johnson	421	Tropospheric degradation chemistry of HCFC-123 (CF_3CHCl_2): a proposed replacement chlorofluorocarbon
H. Elias, U. Götz and K. J. Wännowius	439	Kinetics and mechanism of the oxidation of sulfur(IV) by peroxomonosulfuric acid anion
R. Sempéré and K. Kawamura	449	Comparative distributions of dicarboxylic acids and related polar compounds in snow, rain and aerosols from urban atmosphere
J. S. Bower, G. F. J. Broughton, J. R. Stedman and M. L. Williams	461	A winter NO_2 smog episode in the U.K.

G. W. Campbell, J. R. Stedman and K. Stevenson	477	A survey of nitrogen dioxide concentrations in the United Kingdom using diffusion tubes, July–December 1991
J. W. Erisman, B. G. van Elzakker, M. G. Mennen, J. Hogenkamp, E. Zwart, L. van den Beld, F. G. Römer, R. Bobbink, G. Heil, M. Raessen, J. H. Duyzer, H. Verhage, G. P. Wyers, R. P. Otjes and J. J. Möls	487	The Elspeetsche Veld experiment on surface exchange of trace gases: summary of results
R. M. Harrison, Z. Zlatev and C. J. Ottley	497	A comparison of the predictions of an Eulerian atmospheric transport–chemistry model with experimental measurements over the North Sea
F. Martín, F. Valero and J. A. García-Miguel	517	On the response of the background atmos- pheric CO ₂ growth rate to the anomalies of the sea-surface temperature in the equatorial Pacific Ocean
A. S. Wexler, F. W. Lurmann and J. H. Seinfeld	531	Modelling urban and regional aerosols—I. Model development
R. L. Falconer and T. F. Bidleman	547	Vapor pressures and predicted particle/gas distributions of polychlorinated biphenyl congeners as functions of temperature and ortho-chlorine substitution
O. R. Bullock Jr	555	A computationally efficient method for the characterization of sub-grid-scale precipitation variability for sulfur wet removal estimates
<i>Technical Note</i> M. Whalen, J. N. Driscoll and C. D. Wood	567	Detection of aromatic hydrocarbons in the atmosphere at ppt levels
<i>News and Opinions</i> Introduction	571	
Calendar	571	
Book Review	573	J. P. Lodge Jr

Number 4

D. W. Clow and G. P. Ingersoll	575	Particulate carbonate matter in snow from selected sites in the south-central Rocky Mountains
H. Kaupp, J. Towara and M. S. McLachlan	585	Distribution of polychlorinated dibenzo- <i>p</i> - dioxins and dibenzofurans in atmospheric particulate matter with respect to particle size
S. F. Mueller and R. E. Imhoff	595	Estimates of particle formation and growth in coal-fired boiler exhaust—I. Observations
S. F. Mueller and R. E. Imhoff	603	Estimates of particle formation and growth in coal-fired boiler exhaust—II. Theory and model simulations

T. Tirabassi and U. Rizza	611	Applied dispersion modelling for ground-level concentrations from elevated sources
B. Dupré, Ph. Négrel, F. Seimbille and C. J. Allegre	617	$^{87}\text{Sr}/^{86}\text{Sr}$ ratio variation during a rain event
H. Horvath, G. Metzger, O. Preining and R. F. Pueschel	621	Observation of a blue sun over New Mexico, U.S.A., on 19 April 1991
H. Nitta, M. Ichikawa, M. Sato, S. Konishi and M. Ono	631	A new approach based on a covariance structure model to source apportionment of indoor fine particles in Tokyo
R. G. Harrison and H. M. ApSimon	637	Krypton-85 pollution and atmospheric electricity
H. M. ApSimon, R. F. Warren and J. J. N. Wilson	649	The abatement strategies assessment model—ASAM: applications to reductions of sulphur dioxide emissions across Europe
H. M. ApSimon, B. M. Barker and S. Kayin	665	Modelling studies of the atmospheric release and transport of ammonia in anticyclonic episodes
R. W. Allott, M. Kelly and C. N. Hewitt	679	A model of environmental behaviour of contaminated dust and its application to determining dust fluxes and residence times
Zhao Dianwu and Wang Anpu	689	Estimation of anthropogenic ammonia emissions in Asia
C. P. Wake, J. E. Dibb, P. A. Mayewski, Li Zhongqin and Xie Zichu	695	The chemical composition of aerosols over the eastern Himalayas and Tibetan plateau during low dust periods
C. M. Romo-Kröger, J. R. Morales, M. I. Dinator, F. Llona and L. C. Eaton	705	Heavy metals in the atmosphere coming from a copper smelter in Chile
K. J. Allwine and C. D. Whiteman	713	Single-station integral measures of atmospheric stagnation, recirculation and ventilation
R. H. Myrick, S. K. Sakiyama, R. P. Angle and H. S. Sandhu	723	Seasonal mixing heights and inversions at Edmonton, Alberta
D. H. Lowenthal, B. Zielinska, J. C. Chow, J. G. Watson, M. Gautam, D. H. Ferguson, G. R. Neuroth and K. D. Stevens	731	Characterization of heavy-duty diesel vehicle emissions
<i>Preliminary Communication</i> B. C. Faust and J. M. Allen	745	Sunlight-initiated partial inhibition of the dissolved iron(III)-catalysed oxidation of S(IV) species by molecular oxygen in aqueous solution
<i>News and Opinions</i> Introduction	749	
Calendar	749	
Conference Report	751	D. N. Asimakopoulos
Book Reviews	753	J. P. Lodge Jr

Number 5

CONFERENCE ON VISIBILITY AND FINE PARTICLES
VIENNA, AUSTRIA, 15-18 SEPTEMBER 1992

H. Horvath	755	Conference on Visibility and Fine Particles in Vienna, 15-18 September 1992: an overview
H. Horvath	757	Remarks and suggestions on nomenclature and symbols in atmospheric optics
<i>Section I: Atmospheric optics and image transfer</i>		
I. L. Katsev and E. P. Zege	763	The modern theory of black object visibility and meteorological visibility range
C. Rozé, B. Maheu, G. Gréhan and J. Ménard	769	Evaluations of the sighting distance in a foggy atmosphere by Monte Carlo simulation
M. Kocifaj	777	Solving the diffusion of solar radiation in the atmosphere and identifying the aerosol structure
M. Wendisch and W. von Hoyningen-Huene	785	Possibility of refractive index determination of atmospheric aerosol particles by ground-based solar extinction and scattering measurements
<i>Section II: In-cloud transformation of particles</i>		
V. Ulevičius, S. Trakumas and A. Girgždys	795	Aerosol size distribution transformation in fog
<i>Section III: Humidity influence on particle growth and visibility</i>		
W. E. Wilson and P. C. Reist	803	A PC-based Mie scattering program for theoretical investigations of the optical properties of atmospheric aerosols as a function of composition and relative humidity
E.-M. Uhlig, M. Stettler and W. von Hoyningen-Huene	811	Experimental studies on the variability of the extinction coefficient by different air masses
B. A. Nilsson	815	Model of the relation between aerosol extinction and meteorological parameters
M. L. Pitchford and P. H. McMurry	827	Relationship between measured water vapor growth and chemistry of atmospheric aerosol for Grand Canyon, Arizona, in winter 1990
K. A. Gebhart, W. C. Malm and D. Day	841	Examination of the effects of sulfate acidity and relative humidity on light scattering at Shenandoah National Park
J. F. Sisler and W. C. Malm	851	The relative importance of soluble aerosols to spatial and seasonal trends of impaired visibility in the United States
<i>Section IV: Light absorption by aerosol particles</i>		
T. Raunemaa, U. Kikas and T. Bernotas	865	Observation of submicron aerosol, black carbon and visibility degradation in remote area at temperature range from -24 to 20°C
G. W. Mulholland and N. P. Bryner	873	Radiometric model of the transmission cell-reciprocal nephelometer
R. A. Dobbins, G. W. Mulholland and N. P. Bryner	889	Comparison of a fractal smoke optics model with light extinction measurements

Section V: Measuring methods and networks

- M. Gazzi, V. Vicentini and U. Bonafé 901 A field experiment on contrast reduction law
- W. H. White, E. S. Macias, R. C. Nininger and D. Schorran 909 Size-resolved measurements of light scattering by ambient particles in the southwestern U.S.A.
- W. von Hoyningen-Huene and M. Wendisch 923 Variability of aerosol optical parameters by advective processes
- A. Thomas and J. Gebhart 935 Correlations between gravimetry and light scattering photometry for atmospheric aerosols
- H. Tang, E. A. Lewis, D. J. Eatough, R. M. Burton and R. J. Farber 939 Determination of the particle size distribution and chemical composition of semi-volatile organic compounds in atmospheric fine particles with a diffusion denuder sampling system

Section VI: Airplane and space observations, solar photometry

- R. F. Pueschel, J. M. Livingston, G. V. Ferry and T. E. DeFelice 951 Aerosol abundances and optical characteristics in the Pacific Basin free troposphere
- J. Lukáč 961 Trend of solar radiation attenuation by atmospheric aerosols
- V. E. Cachorro and A. M. de Frutos 963 Retrieval of atmospheric aerosol characteristics from visible extinction data at Valladolid (Spain)
- A. A. Galal and R. H. Hamid 973 On the instability of atmospheric optics in polluted areas
- V. Cuomo, C. Serio, F. Esposito and G. Pavese 977 A differential absorption technique in the near infra-red to determine precipitable water

Section VII: Trends in visibility and fine particles, including urban data

- A. Trier and L. Firinguetti 991 A time series investigation of visibility in an urban atmosphere—I
- V. N. Aref'ev and V. K. Semenov 997 Spectral transparency of the atmosphere in the center of the European-Asian continent
- R. A. Stuart and R. M. Hoff 1001 Airport visibility in Canada—revisited
- R. A. Eldred and T. A. Cahill 1009 Trends in elemental concentrations of fine particles at remote sites in the United States of America

Section VIII: Response of visibility to emission changes

- W. C. Malm, J. Trijonis, J. Sisler, M. Pitchford and R. L. Dennis 1023 Assessing the effect of SO₂ emission changes on visibility
- W. H. White, E. S. Macias, J. D. Kahl, P. J. Samson, J. V. Molenar and W. C. Malm 1035 On the potential of regional-scale emissions zoning as an air quality management tool for the Grand Canyon

Section IX: Physiological optics

- M. L. Pitchford and W. C. Malm 1049 Development and applications of a standard visual index
- J. V. Molenar, W. C. Malm and C. E. Johnson 1055 Visual air quality simulation techniques

R. C. Henry, T. Shibata and D. Chitwood	1065	Construction and operation of a video-based visual colorimeter for atmospheric research
<i>Section X: Physics of aerosols</i>		
N. Zhang, Y. C. Chang, R. V. Calabrese and J. W. Gentry	1073	The potential use of sequences of Fibonacci series to simulate breakage and agglomeration
<i>News and Opinions</i>		
Introduction	1081	
Calendar	1081	

Number 6

A. Karlsson, K. Irgum and P. Lindgren	1083	Trace-level standard for gaseous nitric acid based on sublimation of ammonium nitrate
R. M. Harrison and A.-M. N. Kitto	1089	Evidence for a surface source of atmospheric nitrous acid
H. Boudries, G. Toupance and A. L. Dutot	1095	Seasonal variation of atmospheric nonmethane hydrocarbons on the western coast of Brittany, France
R. L. Tanner and B. Zielinska	1113	Determination of the biogenic emission rates of species contributing to VOC in the San Joaquin Valley of California
M. A. Nilles, J. D. Gordon and L. J. Schroder	1121	The precision of wet atmospheric deposition data from National Atmospheric Deposition Program/National Trends Network sites deter- mined with collocated samplers
D.-S. Kim, V. P. Aneja and W. P. Robarge	1129	Characterization of nitrogen oxide fluxes from soil of a fallow field in the central Piedmont of North Carolina
J. L. Jaffrezzo, M. P. Clain and P. Masclet	1139	Polycyclic aromatic hydrocarbons in the polar ice of Greenland. Geochemical use of these atmospheric tracers
M. L. Sánchez and J. Sanz	1147	Application of discriminant analysis to inter- pret the behaviour of photochemical oxidants in an urban area
D. E. Oram and S. A. Penkett	1159	Observations in eastern England of elevated methyl iodide concentrations in air of Atlantic origin
B. J. Johnson, S. C. Huang, M. LeCave and M. Porterfield	1175	Seasonal trends of nitric acid, particulate nitrate, and particulate sulfate concentrations at a southwestern U.S. mountain site
O. Klemm, A. S. Bachmeier, R. W. Talbot and K. I. Klemm	1181	Fog chemistry at the New England coast: influence of air mass history
E. O. Edney, D. J. Driscoll, E. W. Corse and F. T. Blanchard	1189	Laboratory investigations of interactions of irradiated <i>o</i> -xylene/NO _x /SO ₂ /air mixtures with aqueous media containing sodium fluoride, sodium trifluoroacetate, ammonium nitrate and hydrogen peroxide

A. Guenther, P. Zimmerman and M. Wildermuth	1197	Natural volatile organic compound emission rate estimates for U.S. woodland landscapes
Shuming Du, J. D. Wilson and E. Yee	1211	Probability density functions for velocity in the convective boundary layer, and implied trajectory models
<i>Technical Note</i>		
H. Horvath and W. Kaller	1219	Calibration of Integrating Nephelometers in the post-halocarbon era
<i>News and Opinions</i>		
Introduction	1225	
Calendar	1225	
<i>Announcement</i>		
N. M. Nadkarni and G. Parker	1227	Creation of the Canopy Research Network
Book Review	1229	J. P. Lodge Jr

Number 7

Yuegang Zuo and J. Hoigné	1231	Photochemical decomposition of oxalic, glyoxalic and pyruvic acid catalysed by iron in atmospheric waters
J. H. Duyzer, H. L. M. Verhagen, J. H. Weststrate, F. C. Bosveld and A. W. M. Vermetten	1241	The dry deposition of ammonia onto a Douglas fir forest in the Netherlands
A. Stohl and H. Kromp-Kolb	1255	Origin of ozone in Vienna and surroundings, Austria
B. Lighthart and B. T. Shaffer	1267	Bacterial flux from chaparral into the atmosphere in mid-summer at a high desert location
C. Yagüe and J. L. Cano	1275	Eddy transfer processes in the atmospheric boundary layer
D. Sopauskiene and D. Budvytyte	1291	Chemical characteristics of atmospheric aerosol in rural site of Lithuania
E. Karlsson, A. Sjöstedt and S. Håkansson	1297	Can weak turbulence give high concentrations of carbon dioxide in baby cribs?
A. Gogou, E. G. Stephanou, N. Stratigakis, J. O. Grimalt, R. Simo, M. Aceves and J. Albaiges	1301	Differences in lipid and organic salt constituents of aerosols from eastern and western Mediterranean coastal cities
F. M. McGovern, A. Krasenbrink, S. G. Jennings, B. Georgi, T. G. Spain, M. Below and T. C. O'Connor	1311	Mass measurements of aerosol at Mace Head, on the west coast of Ireland
K. Haraguchi, E. Kitamura, T. Yamashita and A. Kido	1319	Simultaneous determination of trace pesticides in urban air
M. Z. Jacobson, R. P. Turco, E. J. Jensen and O. B. Toon	1327	Modeling coagulation among particles of different composition and size

S. Tonnesen and H. E. Jeffries	1339	Inhibition of odd oxygen production in the Carbon Bond Four and Generic Reaction Set Mechanisms
<i>Short Communication</i>		
B. D. Banerjee, A. K. Singh, J. Kispotta and B. B. Dhar	1351	Trend of methane emission to the atmosphere from Indian coal mining
<i>News and Opinions</i>		
Introduction	1353	
Calendar	1353	
<i>Report</i>		
R. U. Cooke and G. B. Gibbs	1355	Crumbling heritage?

Number 8

The Glen E. Gordon Memorial Issue

P. K. Hopke	1357	Glen E. Gordon 1935-1992
L. A. Currie, A. E. Sheffield, G. E. Riederer and G. E. Gordon	1359	Improved atmospheric understanding through exploratory data analysis and complementary modeling: the urban K-Pb-C system
A. E. Sheffield, G. E. Gordon, L. A. Currie and G. E. Riederer	1371	Organic, elemental, and isotopic tracers of air pollution sources in Albuquerque, NM
Xudong Huang, I. Olmez, N. K. Aras and G. E. Gordon	1385	Emissions of trace elements from motor vehicles: potential marker elements and source composition profile
M. S. Germani and W. H. Zoller	1393	Solubilities of elements on in-stack suspended particles from a municipal incinerator
D. L. Anderson, M. E. Kitto, L. McCarthy and W. H. Zoller	1401	Sources and atmospheric distribution of particulate and gas-phase boron
D. M. Glover and P. K. Hopke	1411	Exploration of multivariate atmospheric particulate compositional data by projection pursuit
M. P. Zelenka, W. E. Wilson, J. C. Chow and P. J. Liroy	1425	A combined TTFA/CMB receptor modeling approach and its application to air pollution sources in China
Y. Hashimoto, Y. Sekine, Hui Kang Kim, Zong Liang Chen and Zhi Min Yang	1437	Atmospheric fingerprints of East Asia, 1986-1991. An urgent record of aerosol analysis by the JACK Network
Ning Gao, Meng-Dawn Cheng and P. K. Hopke	1447	Receptor modeling of airborne ionic species collected in SCAQS
Zhong Yu Wu, Ming Han, Zhi Chao Lin and J. M. Ondov	1471	Chesapeake Bay atmospheric deposition study, Year 1: sources and dry deposition of selected elements in aerosol particles
J. R. Scudlark, K. M. Conko and T. M. Church	1487	Atmospheric wet deposition of trace elements to Chesapeake Bay: CBAD Study Year 1 results

D. L. Leister and J. E. Baker	1499	Atmospheric deposition of organic contaminants to the Chesapeake Bay
E. G. Burkhard, V. A. Dutkiewicz and L. Husain	1521	A study of SO_2 , SO_4^{2-} and trace elements in clear air and clouds above the Midwestern United States
G. J. Keeler and W. R. Pierson	1535	Regional trace element and sulfate transport
N. Z. Heidam	1549	Arctic aerosol factor models: validation by marginally detected elements
F. A. Akeredolu, L. A. Barrie, M. P. Olson, K. K. Oikawa, J. M. Pacyna and G. J. Keeler	1557	The flux of anthropogenic trace metals into the Arctic from the mid-latitudes in 1979/80
<i>News and Opinions</i>		
Introduction	1573	
Calendar	1573	

Number 9

A. Malyschew, H.-J. Schmidt, K. G. Weil and P. Hoffmann	1575	Methods for characterization of colloid particles in rain water
H. Skov, Th. Benter, R. N. Schindler, J. Hjorth and G. Restelli	1583	Epoxide formation in the reactions of the nitrate radical with 2,3-dimethyl-2-butene, <i>cis</i> - and <i>trans</i> -2-butene and isoprene
R. M. Harrison, M. I. Msibi, A.-M. N. Kitto and S. Yamulki	1593	Atmospheric chemical transformations of nitrogen compounds measured in the North Sea Experiment, September 1991
A. C. Comrie	1601	A synoptic climatology of rural ozone pollution at three forest sites in Pennsylvania
I. Y. Lee and H. M. Park	1615	Comparison of microphysics parameterizations in a three-dimensional dynamic cloud model
S. Kutsuna, M. Kasuda and T. Ibusuki	1627	Transformation and decomposition of 1,1,1-trichloroethane on titanium dioxide in the dark and under photoillumination
R. Bellasio and M. Tamponi	1633	MDGP: a new Eulerian 3D unsteady state model for heavy gas dispersion
S. Loranger and J. Zayed	1645	Manganese and lead concentrations in ambient air and emission rates from unleaded and leaded gasoline between 1981 and 1992 in Canada: a comparative study
J. P. J. M. M. de Valk and J. C. H. van der Hage	1653	A model for cloud chemistry processes suitable for use in long range transport models: a sensitivity study
J. P. J. M. M. de Valk	1665	A model for cloud chemistry: a comparison between model simulations and observations in stratus and cumulus
D. Dabdub and J. H. Seinfeld	1679	Air quality modeling on massively parallel computers

M. A. Geigert, N. P. Nikolaidis, D. R. Miller and J. Heitert	1689	Deposition rates for sulfur and nitrogen to a hardwood forest in northern Connecticut, U.S.A.
J. S. Reid, R. G. Flocchini, T. A. Cahill, R. S. Ruth and D. P. Salgado	1699	Local meteorological, transport and source aerosol characteristics of late autumn Owens Lake (dry) dust storms
<i>Short Communication</i>		
I-F. Li, P. Biswas and S. Islam	1707	Estimation of the dominant degrees of freedom for air pollutant concentration data: applications to ozone measurements
<i>Technical Note</i>		
D. S. Niyogi and R. S. Patil	1715	Metrose: a modified windrose for air quality management
<i>News and Opinions</i>		
Introduction	1719	
Calendar	1719	

Number 10

B. M. Davison and A. G. Allen	1721	A method for sampling dimethylsulfide in polluted and remote marine atmospheres
J. Savarino, C. F. Boutron and J.-L. Jaffrezo	1731	Short-term variations of Pb, Cd, Zn and Cu in recent Greenland snow
S. W. Stein, B. J. Turpin, Xiaoping Cai, P.-F. Huang and P. H. McMurry	1739	Measurements of relative humidity-dependent bounce and density for atmospheric particles using the DMA-impactor technique
M. Pósfai, J. R. Anderson, P. R. Buseck, T. W. Shattuck and N. W. Tindale	1747	Constituents of a remote Pacific marine aerosol: a TEM study
S. J. Roselle	1757	Effects of biogenic emission uncertainties on regional photochemical modeling of control strategies
C. E. Asbury, W. H. McDowell, R. Trinidad-Pizarro and S. Berrios	1773	Solute deposition from cloud water to the canopy of a Puerto Rican montane forest
V. P. Aneja, C. S. Claiborn, Zheng Li and A. Murthy	1781	Trends, seasonal variations, and analysis of high-elevation surface nitric acid, ozone, and hydrogen peroxide
I. Topalova, N. A. Katsanos, J. Kapos and Ch. Vassilakos	1791	Simple measurement of deposition velocities and wall reaction probabilities in denuder tubes
C. M. Benkovitz	1803	Discussion
T. Komeiji, K. Aoki, I. Koyama and T. Okita	1803	Authors' Reply
C. M. Benkovitz	1803	Additional Discussion

T. Komeiji, A. Aoki, I. Koyama and T. Okita	1804	Additional Reply
Addendum	1807	
Erratum	1809	
<i>News and Opinions</i>		
Introduction	1811	
Calendar	1811	

Number 11

5TH INTERNATIONAL WIND AND WATER TUNNEL DISPERSION MODELLING WORKSHOP, 30 OCTOBER-1 NOVEMBER, 1991, WARREN SPRING LABORATORY, STEVENAGE, U.K.

D. Hall and A. Robins	1813	5th EURASAP International Workshop on Wind and Water Tunnel Modelling of Atmospheric Flow and Dispersion, 30 October-1 November, 1991, Warren Spring Laboratory, Stevenage, Herts, U.K.
M. H. Mirzai, J. K. Harvey and C. D. Jones	1819	Wind tunnel investigation of dispersion of pollutants due to wind flow around a small building
H. L. Higson, R. F. Griffiths, C. D. Jones and D. J. Hall	1827	Concentration measurements around an isolated building: a comparison between wind tunnel and field data
S. Singh, M. J. Fulker and G. Marshall	1837	A wind-tunnel examination of the variation of sigma Y and sigma Z with selected parameters
W. G. Hoydysh and W. F. Dabberdt	1849	Concentration fields at urban intersections: fluid modeling studies
P. T. Roberts, R. E. J. Fryer-Taylor and D. J. Hall	1861	Wind-tunnel studies of roughness effects in gas dispersion
R. Zegadi, M. Ayrault and P. Mejean	1871	Effects of a two-dimensional low hill in a thermally neutral and stably stratified turbu- lent boundary layer
W. H. Melbourne, T. J. Taylor and C. F. Grainger	1879	Dispersion modelling in convective wind flows
C. Grainger and R. N. Meroney	1887	Inverted floor wind-tunnel simulation of stably stratified atmospheric boundary layer flow
Y. Ohya, Y. Nakamura and S. Ozono	1895	A wind tunnel for studying density-stratified flows
A. Cenedese and G. Querzoli	1901	A laboratory model of turbulent convection in the atmospheric boundary layer
N. J. Duijm	1915	Long-term air quality statistics derived from wind-tunnel investigations
Y. Ide, R. Ohba and K. Okabayashi	1925	Development of overlapping modelling for atmospheric diffusion

M. J. Costa, M. L. Riethmuller and C. Borrego	1933	Wind-tunnel simulation of gas dispersion over complex terrain: comparison of two length- scale studies
B. Sevruck, J.-A. Hertig and R. Tettamanti	1939	The effect of orifice rim thickness on the wind speed above precipitation gauges
V. Nešpor, B. Sevruck, R. Spiess and J.-A. Hertig	1945	Modelling of wind-tunnel measurements of precipitation gauges
Jie Xuan and A. Robins	1951	The effects of turbulence and complex terrain on dust emissions and depositions from coal stockpiles
<i>News and Opinions</i> Introduction	1961	
Calendar	1961	

Number 12

G. Butterweck, A. Reineking, J. Kesten and J. Porstendörfer	1963	The use of the natural radioactive noble gases radon and thoron as tracers for the study of turbulent exchange in the atmospheric bound- ary layer—case study in and above a wheat field
H. Pleijel, G. Wallin, P. E. Karlsson, L. Skärby and G. Selldén	1971	Ozone deposition to an oat crop (<i>Avena sativa</i> L.) grown in open-top chambers and in the ambient air
D. J. Thomson and M. R. Montgomery	1981	Reflection boundary conditions for random walk models of dispersion in non-Gaussian turbulence
D. C. Dowdell, G. P. Matthews and I. Wells	1989	An investigation into the sensitivity of the atmospheric chlorine and bromine loading using a globally averaged mass balance model
J. Burkhardt and R. Eiden	2001	Thin water films on coniferous needles (With an Appendix "A new device for the study of water vapour condensation and gaseous depo- sition to plant surfaces and particle samples" by J. Burkhardt and J. Gerchau)
R. H. Maryon and A. T. Buckland	2019	Diffusion in a Lagrangian multiple particle model: a sensitivity study
R. G. Derwent and T. J. Davies	2039	Modelling the impact of NO _x or hydrocarbon control on photochemical ozone in Europe
Pei-Ming Wu and K. Okada	2053	Nature of coarse nitrate particles in the atmosphere—a single particle approach
J. C. Chow, J. G. Watson, E. M. Fujita, Zhiqiang Lu, D. R. Lawson and L. L. Ashbaugh	2061	Temporal and spatial variations of PM _{2.5} and PM ₁₀ aerosol in the Southern California Air Quality Study
C. S. Christoforou, L. G. Salmon and G. R. Cass	2081	Deposition of atmospheric particles within the Buddhist cave temples at Yungang, China

J. B. Milford, Dongfen Gao, A. Zafirakou and T. E. Pierce	2093	Ozone precursor levels and responses to emissions reductions: analysis of regional oxidant model results
L. S. Casado, S. Rouhani, C. A. Cardelino and A. J. Ferrier	2105	Geostatistical analysis and visualization of hourly ozone data
Chow Shu Djen, Zheng Jingchun and Wu Lin	2119	Solar radiation and surface temperature in Shanghai City and their relation to urban heat island intensity
L. Poissant	2129	A practical demonstration of the absolute PCAs bias
<i>News and Opinions</i> Introduction	2135	
Calendar	2135	

Number 13

The Kuwaiti Oil Fires

P. Brimblecombe	2137	Introduction: atmosphere surrounding the Kuwait oil fires
T. Husain	2139	Extinguishing of Kuwaiti oil fires—challenges, technology, and success
T. Husain	2149	Kuwaiti oil fires—source estimates and plume characterization
J. T. McQueen and R. R. Draxler	2159	Evaluation of model back trajectories of the Kuwait oil fires smoke plume using digital satellite data
T. Husain and S. M. Khan	2175	Impact assessment and forecasting of soot from Kuwaiti oil fires using a modeling approach
R. R. Draxler, J. T. McQueen and B. J. B. Stunder	2197	An evaluation of air pollutant exposures due to the 1991 Kuwait oil fires using a Lagrangian model
T. Husain	2211	Kuwaiti oil fires—modeling revisited
J. S. Reid, T. A. Cahill, P. H. Wakabayashi and M. R. Dunlap	2227	Geometric/aerodynamic equivalent diameter ratios of ash aggregate aerosols collected in burning Kuwaiti well fields
T. Husain and M. B. Amin	2235	Kuwaiti oil fires—particulate monitoring
M. Sadiq and A. A. Mian	2249	Nickel and vanadium in air particulates at Dhahran (Saudi Arabia) during and after the Kuwait oil fires

T. Okita, M. Yanagihara, K. Yoshida, M. Iwata, K. Tanabe and H. Hara	2255	Measurements of air pollution associated with oil fires in Kuwait by a Japanese research team
M. B. Amin and T. Husain	2261	Kuwaiti oil fires—air quality monitoring
<i>Short Communication</i>		
F. Kh. Abdali and H. A. Nasrallah	2277	The effect of oil fires on the maximum and minimum temperatures in Kuwait City
<i>News and Opinions</i>		
Introduction	2279	
Calendar	2279	

Number 14

A. Venkatram, P. Saxena, G. Kuntasal, P. A. Ryan, P. K. Karamchandani and P. K. Mueller	2281	The modification of a semi-empirical long- range transport model to allow estimation of ambient sulfate concentrations
C. Ravichandran and B. Padmanabhamurty	2291	Acid precipitation in Delhi, India
J. Miranda, T. A. Cahill, J. R. Morales, F. Aldape, J. Flores M. and R. V. Díaz	2299	Determination of elemental concentrations in atmospheric aerosols in Mexico City using Proton Induced X-ray Emission, Proton Elastic Scattering, and laser absorption
F. Andrade, C. Orsini and W. Maenhaut	2307	Relation between aerosol sources and meteorological parameters for inhalable atmospheric particles in Sao Paulo city, Brazil
A. Tripathi	2317	Airborne lead pollution in the city of Varanasi, India
D. J. Wilson and E. H. Chui	2325	Influence of building size on rooftop dispersion of exhaust gas
P. J. García Nieto, B. Arganza García, J. M. Fernández Díaz and M. A. Rodríguez Braña	2335	Parametric study of selective removal of atmospheric aerosol by below-cloud scavenging
I. Y. Lee and H. M. Park	2343	Parameterization of the pollutant transport and dispersion in urban street canyons
Chang-Chuan Chan, Shou-Hsiang Lin and Guor-Rong Her	2351	Office worker's exposure to volatile organic compounds while commuting and working in Taipei city
Jyh-Jian Liu, Chang-Chuan Chan and Fu-Tien Jeng	2361	Predicting personal exposure levels to carbon monoxide (CO) in Taipei, based on actual CO measurements in microenvironments and a Monte Carlo simulation method

S. Sollinger, K. Levsen and G. Wünsch	2369	Indoor pollution by organic emissions from textile floor coverings: climate test chamber studies under static conditions
<i>News and Opinions</i>		
Introduction	2379	
Calendar	2379	
Book Review	2381	S. T. Rao

Number 15

A. Lindskog and J. Moldanová	2383	The influence of the origin, season and time of the day on the distribution of individual NMHC measured at Rörvik, Sweden
V.-M. Kerminen and A. S. Wexler	2399	Post-fog nucleation of $\text{H}_2\text{SO}_4\text{-H}_2\text{O}$ particles in smog
E. Arvanitopoulou, N. A. Katsanos, H. Metaxa and F. Roubani-Kalantzopoulou	2407	Simple measurement of deposition velocities and wall reaction probabilities in denuder tubes—II. High deposition velocities
R. J. B. Peters, J. A. D. V. Renesse V. Duivenbode, J. H. Duyzer and H. L. M. Verhagen	2413	The determination of terpenes in forest air
M. W. Gallagher, T. W. Choularton, K. N. Bower, I. M. Stromberg, K. M. Beswick, D. Fowler and K. J. Hargreaves	2421	Measurements of methane fluxes on the landscape scale from a wetland area in North Scotland
O. Hertel, J. Christensen and Ø. Hov	2431	Modelling of the end products of the chemical decomposition of DMS in the marine boundary layer
L. Breytenbach, W. van Pairen, J. J. Pienaar and R. van Eldik	2451	The influence of organic acids and metal ions on the kinetics of the oxidation of sulfur(IV) by hydrogen peroxide
E. Lamaud, A. Chapuis, J. Fontan and E. Serie	2461	Measurements and parameterization of aerosol dry deposition in a semi-arid area
M. Das and V. P. Aneja	2473	Measurements and analysis of concentrations of gaseous hydrogen peroxide and related species in the rural Central Piedmont region of North Carolina
B. L. Davis, Yun Deng, D. J. Anderson, L. R. Johnson, A. G. Detwiler, L. L. Hodson and J. E. Sickles	2485	Limits of detection and artifact formation of sulfates and nitrates collected with a triple-path denuder
J. G. Watson, J. C. Chow, D. H. Lowenthal, L. C. Pritchett, C. A. Frazier, G. R. Neuroth and R. Robbins	2493	Differences in the carbon composition of source profiles for diesel- and gasoline-powered vehicles
R. A. Wadden, P. A. Scheff and I. Uno	2507	Receptor modeling of VOCs—II. Development of VOC control functions for ambient ozone

M. M. Kane, A. R. Rendell and T. D. Jickells	2523	Atmospheric scavenging processes over the North Sea
R. D. Cohn and R. L. Dennis	2531	The evaluation of acid deposition models using principal component spaces
<i>Short Communications</i>		
A. D. Hewitt and J. H. Cragin	2545	Determination of anion concentrations in individual snow crystals and snowflakes
J. Ziajka, F. Beer and P. Warneck	2549	Iron-catalysed oxidation of bisulphite aqueous solution: evidence for a free radical chain mechanism
<i>News and Opinions</i>		
Introduction	2553	
Calendar	2553	
J. P. Lodge Jr G. R. Bigg	2555	Book Reviews

Number 16

W. Loibl, W. Winiwarter, A. Kopsca, J. Zueger and R. Baumann	2557	Estimating the spatial distribution of ozone concentrations in complex terrain
A. McCulloch, P. M. Midgley and D. A. Fisher	2567	Distribution of emissions of chlorofluorocar- bons (CFCs) 11, 12, 113, 114 and 115 among reporting and non-reporting countries in 1986
J. W. Erisman	2583	Evaluation of a surface resistance parametriz- ation of sulphur dioxide
J. W. Erisman, A. Van Pul and P. Wyers	2595	Parametrization of surface resistance for the quantification of atmospheric deposition of acidifying pollutants and ozone
L. Haszpra and I. Szilágyi	2609	Non-methane hydrocarbon composition of car exhaust in Hungary
A. G. Nord, A. Svärdh and K. Tronner	2615	Air pollution levels reflected in deposits on building stone
R. G. Derwent, P. G. Simmonds and W. J. Collins	2623	Ozone and carbon monoxide measurements at a remote maritime location, Mace Head, Ireland, from 1990 to 1992
V. L. Foltescu, J. Isakson, E. Selin and M. Stikans	2639	Measured fluxes of sulphur, chlorine and some anthropogenic metals to the Swedish west coast
Y. Yokouchi	2651	Seasonal and diurnal variation of isoprene and its reaction products in a semi-rural area
D. P. Chock and S. L. Winkler	2659	A comparison of advection algorithms coupled with chemistry
M. Olzmann, Th. Benter, M. Liesner and R. N. Schindler	2677	On the pressure dependence of the NO ₂ product yield in the reaction of NO ₃ radicals with selected alkenes
N. Dombrowski, E. A. Foumeny, D. B. Ingham and Y. D. Qi	2685	Prediction of "blowout" from deposition gauges

D. S. Lee, J. A. Garland and A. A. Fox	2691	Atmospheric concentrations of trace elements in urban areas of the United Kingdom
L. A. Gundel, W. H. Benner and A. D. A. Hansen	2715	Chemical composition of fog water and interstitial aerosol in Berkeley, California
R. C. Musselman, T. Younglove and P. M. McCool	2727	Response of <i>Phaseolus vulgaris</i> L. to differing ozone regimes having identical total exposure
A. Eldering, G. R. Cass and K. C. Moon	2733	An air monitoring network using continuous particle size distribution monitors: connecting pollutant properties to visibility via Mie scattering calculations
T. R. Quackenbush, M. E. Teske and C. E. Polymeropoulos	2751	A model for assessing fuel jettisoning effects
<i>News and Opinions</i>		
Introduction	2761	
Calendar	2761	

Number 17

J. Kukkonen, M. Kulmala, J. Nikmo, T. Vesala, D. M. Webber and T. Wren	2763	The homogeneous equilibrium approximation in models of aerosol cloud dispersion
D. P. Chock, S. L. Winkler, T. Y. Chang, S. J. Rudy and Z. K. Shen	2777	Urban ozone air quality impact of emissions from vehicles using reformulated gasolines and M85
L. A. Moy, R. R. Dickerson and W. F. Ryan	2789	Relationship between back trajectories and tropospheric trace gas concentrations in rural Virginia
A. E. Milionis and T. D. Davies	2801	Regression and stochastic models for air pollution—I. Review, comments and suggestions
A. E. Milionis and T. D. Davies	2811	Regression and stochastic models for air pollution—II. Application of stochastic models to examine the links between ground-level smoke concentrations and temperature inversions
N. Kumar, A. G. Russell, T. W. Tesche and D. E. McNally	2823	Evaluation of CALGRID using two different ozone episodes and comparison to UAM results
O. Klemm and E. Schaller	2847	Aircraft measurement of pollutant fluxes across the borders of Eastern Germany
R. F. Griffiths	2861	Errors in the use of the Briggs parameterization for atmospheric dispersion coefficients
E. Ganor	2867	The frequency of Saharan dust episodes over Tel Aviv, Israel

R. Chester, G. F. Bradshaw and P. A. Corcoran	2873	Trace metal chemistry of the North Sea particulate aerosol; concentrations, sources and sea water fates
B. Telenta, N. Aleksic and M. Dacic	2885	Application of the operational synoptic model for pollution forecasting in accidental situ- ations
<i>News and Opinions</i>		
Introduction	2893	
Calendar	2893	
Forthcoming Papers	i	

Number 18

D. A. Westenbarger and G. B. Frisvold	2895	Agricultural exposure to ozone and acid precipitation
A. C. Ward	2909	A simple procedure for ranking the per- formance of several air-quality models across a number of different sites
H. W. M. Witlox	2917	The HEGADAS model for ground-level heavy-gas dispersion—I. Steady-state model
H. W. M. Witlox	2933	The HEGADAS model for ground-level heavy-gas dispersion—II. Time-dependent model
H. W. M. Witlox and K. McFarlane	2947	Interfacing dispersion models in the HGSYSTEM hazard-assessment package
D. J. Hall, S. L. Upton and G. W. Marsland	2963	Designs for a deposition gauge and a flux gauge for monitoring ambient dust
H. H. Suh, G. A. Allen, B. Aurian-Blăjeni, P. Koutrakis and R. M. Burton	2981	Field method comparison for the characteriz- ation of acid aerosols and gases
H. E. Jeffries and S. Tonnesen	2991	A comparison of two photochemical reaction mechanisms using mass balance and process analysis
Xiaoming Zhang and A. F. Ghoniem	3005	A computational model for the rise and dispersion of wind-blown, buoyancy-driven plumes—II. Linearly stratified atmosphere
Xiaoming Zhang and A. F. Ghoniem	3019	A computational model for the rise and dispersion of wind-blown, buoyancy-driven plumes—III. Penetration of atmospheric inversion
J. W. Spence and J. N. McHenry	3033	Development of regional corrosion maps for galvanized steel by linking the RADM engin- eering model with an atmospheric corrosion model
J. F. Hopper, D. E. J. Worthy, L. A. Barrie and N. B. A. Trivett	3047	Atmospheric observations of aerosol black carbon, carbon dioxide, and methane in the high Arctic

News and Opinions

Introduction	3055	
Calendar	3055	
New Directions	3056	
J. P. Lodge Jr	3059	Book Review
Forthcoming Papers	i	
Preparation of Papers	iii	

Number 19

B. J. Turpin, J. J. Huntzicker and S. V. Hering	3061	Investigation of organic aerosol sampling artifacts in the Los Angeles basin
R. W. Simpson and Hongchang Xu	3073	Atmospheric lead pollution in an urban area—Brisbane, Australia
V. Subramanyam, K. T. Valsaraj, L. J. Thibodeaux and D. D. Reible	3083	Gas-to-particle partitioning of polycyclic aromatic hydrocarbons in an urban atmosphere
D. J. Moschandreas and P. E. Chang	3093	On the use of a risk ladder: linking public perception of risks associated with indoor air with cognitive elements and attitudes toward risk reduction
D. J. Wilson and B. K. Lamb	3099	Dispersion of exhaust gases from roof-level stacks and vents on a laboratory building
P. Goyal, M. P. Singh and T. K. Bandyopadhyay	3113	Environmental studies of SO ₂ , SPM and NO _x over Agra, with various methods of treating calms
Yu-Mei Kuo and Chih-Shan Li	3125	Seasonal fungus prevalence inside and outside of domestic environments in the subtropical climate
J. K. Mishra, R. Aarathi and M. D. Joshi	3131	Remote sensing quantification and change detection of natural resources over Delhi
Chih-Shan Li	3139	Elemental composition of residential indoor PM ₁₀ in the urban atmosphere of Taipei
L. T. Khemani, G. A. Momin, P. S. P. Rao, A. G. Pillai, P. D. Safai, K. Mohan and M. G. Rao	3145	Atmospheric pollutants and their influence on acidification of rain water at an industrial location on the west coast of India
G. Lorenzini, C. Nali and A. Panicucci	3155	Surface ozone in Pisa (Italy): a six-year study
O. Massambani and F. Andrade	3165	Seasonal behavior of tropospheric ozone in the Sao Paulo (Brazil) Metropolitan Area
N. Mikac and M. Branica	3171	Wet deposition of ionic alkylleads and total lead in urban areas of Croatia

J. G. Kretzschmar

- 3181 Particulate matter levels and trends in Mexico City, Sao Paulo, Buenos Aires and Rio de Janeiro

News and Opinions

Introduction

3193

Calendar

3193

New Directions

3193

Forthcoming Papers

i

Preparation of Papers

iii

Number 20

K. Hansen, G. P. J. Draaijers,
W. P. M. F. Ivens, P. Gundersen
and N. F. M. van Leeuwen

- 3195 Concentration variations in rain and canopy throughfall collected sequentially during individual rain events

C. F. Botha, J. Hahn, J. J. Pienaar
and R. Van Eldik

- 3207 Kinetics and mechanism of the oxidation of sulfur(IV) by ozone in aqueous solutions

P. M. Nelis, D. Branford
and M. H. Unsworth

- 3213 A model of the transfer of radioactivity from sea to land in sea spray

A. Bambauer, B. Brantner,
M. Paige and T. Novakov

- 3225 Laboratory study of NO₂ reaction with dispersed and bulk liquid water

F. W. Lipfert

- 3233 Filter artifacts associated with particulate measurements: recent evidence and effects on statistical relationships

F. Parungo, C. Nagamoto,
Ming-Yu Zhou, A. D. A. Hansen
and J. Harris

- 3251 Aeolian transport of aerosol black carbon from China to the ocean

C. Lin and J. B. Milford

- 3261 Decay-adjusted chemical mass balance receptor modeling for volatile organic compounds

R. J. Farber, P. R. Welsing
and C. Rozzi

- 3277 PM₁₀ and ozone control strategy to improve visibility in the Los Angeles basin

L. M. McKenzie, Wei Min Hao,
G. N. Richards and D. E. Ward

- 3285 Quantification of major components emitted from smoldering combustion of wood

H. Maring and G. Schwartz

- 3293 A condensation particle counter for long-term continuous use in the remote marine environment

W. A. McKay, J. A. Garland,
D. Livesley, C. M. Halliwell
and M. I. Walker

- 3299 The characteristics of the shore-line sea spray aerosol and the landward transfer of radionuclides discharged to coastal sea water

M. F. Kalina and H. Puxbaum

- 3311 A study of the influence of riming of ice crystals on snow chemistry during different seasons in precipitating continental clouds

G. S. Poulos and R. A. Pielke	3329	A numerical analysis of Los Angeles basin pollution transport to the Grand Canyon under stably stratified, southwest flow conditions
F. M. Bowman and J. H. Seinfeld	3359	Fundamental basis of incremental reactivities of organics in ozone formation in VOC/NO _x mixtures
D. Dabdub and J. H. Seinfeld	3369	Numerical advective schemes used in air quality models—sequential and parallel implementation
<i>Short Communications</i>		
Jialiu Xu and Yixiu Zhu	3387	Some characteristics of ozone concentrations and their relations with meteorological factors in Shanghai
E. E. Hindman, W. M. Porch, J. G. Hudson and P. A. Durkee	3393	Ship-produced cloud lines of 13 July 1991
<i>Extended Abstract</i>		
E. Ulrich and B. Williot	3405	Les depots atmospheriques en France de 1850 a 1990
<i>News and Opinions</i>		
Introduction	3407	
Calendar	3407	
Forthcoming Papers	i	
Preparation of Papers	iii	

Number 21

I-Hung Liu, Ching-Yuan Chang, Su-Chin Liu, I-Cheng Chang and Shin-Min Shih	3409	Absorption removal of sulfur dioxide by falling water droplets in the presence of inert solid particles
A. K. Luhan and K. S. Rao	3417	Lagrangian stochastic dispersion model simulations of tracer data in nocturnal flows over complex terrain
J. C. Weil	3433	A hybrid Lagrangian dispersion model for elevated sources in the convective boundary layer
Shao-Meng Li, K. G. Anlauf, H. A. Wiebe, J. W. Bottenheim and K. J. Puckett	3449	Evaluation of a comprehensive Eulerian air quality model with multiple chemical species measurements using principal component analysis
J. C. Chow, J. G. Watson, J. E. Houck, L. C. Pritchett, C. F. Rogers, C. A. Frazier, R. T. Egami and B. M. Ball	3463	A laboratory resuspension chamber to measure fugitive dust size distributions and chemical compositions
M. C. Somerville, S. Mukerjee, D. L. Fox and R. K. Stevens	3483	Statistical approaches in wind sector analyses for assessing local source impacts

H. V. Andersen and M. F. Hovmand	3495	Measurements of ammonia and ammonium by denuder and filter pack
Kai-Uwe Goss	3513	Predicting the enrichment of organic compounds in fog caused by adsorption on the water surface
T. Berg, O. Røyset and E. Steinnes	3519	Trace elements in atmospheric precipitation at Norwegian background stations (1989–1990) measured by ICP–MS
H. A. Bridgman and B. A. Bodhaine	3537	On the frequency of long-range transport events at Point Barrow, Alaska, 1983–1992
<i>News and Opinions</i>		
Introduction	3551	
Calendar	3551	
New Directions	3552	
Forthcoming Papers	i	
Preparation of Papers	iii	

Number 22

The Indoor Air '93 Congress

M. J. Jantunen	3553	Introduction: From air pollution levels to exposure and microenvironments
	3555	Indoor Air '93—Summary Report
J. M. Daisey, A. T. Hodgson, W. J. Fisk, M. J. Mendell and J. T. Brinke	3557	Volatile organic compounds in twelve California office buildings: classes, concentrations and sources
R. Otson, P. Fellin and Quang Tran	3563	VOCs in representative Canadian residences
L. E. Ekberg	3571	Volatile organic compounds in office buildings
S. Alm, A. Reponen, K. Mukala, P. Pasanen, J. Tuomisto and M. J. Jantunen	3577	Personal exposures of preschool children to carbon monoxide: roles of ambient air quality and gas stoves
P. Fellin and R. Otson	3581	Assessment of the influence of climatic factors on concentration levels of volatile organic compounds (VOCs) in Canadian homes
<hr/>		
<i>Regular Papers</i>		
L. G. Franzén, M. Hjelmroos, P. Källberg, E. Brorström-Lundén, S. Juntto and A.-L. Savolainen	3587	The 'yellow snow' episode of northern Fennoscandia, March 1991—a case study of long-distance transport of soil, pollen and stable organic compounds
E. Brorström-Lundén, A. Lindskog and J. Mowrer	3605	Concentrations and fluxes of organic compounds in the atmosphere of the Swedish west coast
O. Atteia	3617	Major and trace elements in precipitation on western Switzerland

H. J. Erbrink	3625	Plume rise in different atmospheres: a practical scheme and some comparisons with lidar measurements
L. L. Sørensen, K. Granby, H. Nielsen and W. A. H. Asman	3637	Diffusion scrubber technique used for measurements of atmospheric ammonia
W. A. H. Asman, R. M. Harrison and C. J. Ottley	3647	Estimation of the net air-sea flux of ammonia over the southern bight of the North Sea
P. M. Haygarth, D. Fowler, S. Stürup, B. M. Davison and K. C. Jones	3655	Determination of gaseous and particulate selenium over a rural grassland in the U.K.
A. Venkatram, P. Karamchandani, P. Pai and R. Goldstein	3665	The development and application of a simplified ozone modeling system (SOMS)
L. A. DE P. Vasconcelos, E. S. Macias and W. H. White	3679	Aerosol composition as a function of haze and humidity levels in the southwestern U.S.
<i>News and Opinions</i>		
Introduction	3693	
Calendar	3693	